HEADQUARTERS

DEPARTMENT OF PORTO RICO.

Secretary of Finance

(CONTINUATION OF THE METRICAL SYSTEM)

Iron Weights

These weights should be made of cast iron All should be shaped as truncated cones, with circular bases; but those of 50 and 20 kilograms shall be acceptable in the form of a truncated pyramid, whose base shall be a parallelogram, with its edges blunted; and also lesser weights whose form be a truncated pyramid with a regular hexagonal base.

The names of these weights, their dimensions, those of their rings, the thickness of the latter, and the toleration or allowance admissible for each of these weights in their essay, that they may be declared fit for use, are stated in the following Table:

No. 5. — Iron Weights.

Name which each weight should bear stamped on its top	Allowance in surplusage. — Grams.	Height or thickness. — Millims.	BASE. The larger one. — Millims.	BASE. The lesser one. — Thousandths.	Rim. Interior diameter. — Thousandths.	Thickness of the iron. — Thousandths.
50 kilograms	20	140	292	263	83.2	19.8
20 ditto	10	97	222	205	60.0	13.5
10 do	6	78	170	150	50.1	10.0
5 do	4	70	133	117	46.1	7.3
2 do	2	41	97	89	35.6	6.8
1 do	1	38	75	69	26.2	5.0
1/2 do	0.5	25	61	55	20.6	3.8
2 hectograms	0.3	23	45	41	15.4	3.5
1 ditto	0.2	18	36	31	12.0	3.0
1/2 do	0.1	14	27	25	10.0	2.8

The rings of the weights should be of forged iron, welded white-hot, and with no tin nor any other alloy. They should be enchased in the upper part of the respective weights, in such a way as not to hinder these from being placed one on top of another.

Each ring should be held by a staple, whose shank should pierce the weight through; and be clinched on its bottom so as to retain the lead necessary for its being kept in coaptation.

At the bottom of each weight there shall be a hollow where the shank of the staple should penetrate, and where the molten lead is to be poured in, all at once, and so much of it as may be necessary for keeping the shank in its place, but always trying to have it cover both branches of the shank, which should be there doubled up. Also the seals of the Commission of Weights and Measures shall be stamped thereon.

Assay of Iron Weights

These weights shall not be admitted if they present any of the following deficiencies:

If the cast-iron be not of the quality commonly termed "gray" casting.

If their dimensions perceptibly differ from those assigned to each of them.

If those which form a series, when placed one on top of another do not rest well set upon their respective bases.

If they present any unevenness, or have been filed or planed with any sort of tool.

If they show any fissures or flaws, or if these be disguised with any filling, whether this be of iron, of lead, or if cemented with any bitumen or paste whatever.

If their rings be not made out of rods of quite cylindrical wire, welded in the forge, without the interposition of any solder, and no other movement being left to them save that necessary to seize them, in carrying the weights about.

If the said rings do not rest well in their own mortises, and may not be easily raised for lifting the weights.

If their staples be not possessed with absolute immobility, and have not the proper thickness for a long duration.

It the lead with which the weights are adjusted be not also equally endowed with complete immobility; if it do not entirely cover the incurved ends of the staple, or not end in a smooth and even surface.

If their names, in their top, expressing their weight, be not plain and quite intelligible.

If, lastly, they be short in the least, or if, being too heavy, they weigh beyond the allowance of surplus which is appointed to each of them.

Brass Weights

Brass weights are generally of a cylindrical form, and each with a knob on its top. Their diameter should be equal to their height, even down to the weight of 5 grams inclusive. This cylinder should be massive, of brass only, or else hollow and loaded with the quantity of lead necessary to complete the whole weight required.

In this case the thickness of the cylinders should be as determined in the next Table, and their volumes those of the correspondent massive weights; attention must be called to the fact that no hollow weights are allowed smaller than those of 200 grams inclusive, the lessser ones having to be massive.

The brass knobs on their tops, no matter to which of either class the weights belong, shall be half as high as their bodies. They should be of the same color as the latter, and screwed on the same, having their bases pierced at their widest part, so that the bore should be prolongated into the weight, without entering the hollow within the same.

This hole should be filled with a spike of red copper wire, fitting the diameter of the said bore, which spike should protrude about one millimeter from it, and be of such thickness that, being flattened in its projecting portion it should by that process be expanded sufficiently to have the die of the State applied thereon.

For the purpose of shortening the work of making them, it is permitted that, in weights smaller than those of 200 grams, the knob and the cylinder should constitute a singly body, and for the same purpose, and for that of rendering easier the application of the name to the weight, those of one and of two grams are allowed to be broader than high, though they should, notwithstanding, preserve their cylindrical shape.

Weights smaller than the gram are made of brass plate of identical color and square in shape. The following Table shows the weights that are made of brass, their name in full and abbreviated, their toleration or allowance in surplusage, the respective height and diameter of the knob and of its base, and the minimum thickness of the walls of such weights as may be made hollow.

No. 6. Brass Weights

NAMES	Marks which they should bear on their top	Centigs. — TOLERATION — Millims.	Height and diameter of the cylinder — Millims.	Height of the knob — Millims.	Total height of the weight — Millims.	Diameter of the knob — Millims.	Diameter of the base of the knob — Millims.	Least thick of the walls of the cylinder of the loaded weights — Millims.
Twenty kilograms	20 Kilogs.	150.	142	71.	213.	80	96	8.
Ten kilograms	10 Kilogs.	80.	114	57.	171.	60	76	7.
Five kilograms	5 Kilogs.	50.	90	45.	135.	46	60	6.
Double kilogram	2 Kilogs.	25.	66	33.	99.	34	42	5.
Kilogram	1 Kilogs.	15.	52	26.	78.	27	32	4.
Half kilogram	500 Grams.	10.	42	21.	63.	22	27	3.5
Double hectogram	200 Grams.	5.	32	16.	48.	16	20	3.
Hectogram	100 Grams.	3.	25	12.5	37.5	..	..	..
Half hectogram	50 Grams.	2.5	20	10.	30.	..	..	..
Double decagram	20 Grams.	2.	14	7.	21.	..	..	..
Decagram	10 Grams.	1.5	11	5.5	16.5	..	..	..
Half decagram	5 Grams.	1	9	4.5	13.5	..	..	..
			Diameter —	Height —				
Double gram	2 grms.	0.4	8	4.	8.			
Gram	1 do	0.2	7	2.5	6.			
			Side of the square in millimeters					
Half gram	5 Decigs.		..... 15.					
Double decigram	2 Decigs.		..... 12.					
Decigram	1 Decigs.		..... 10.					
Half decigram	5 Cntgs.		..... 9.					
Double decigram	2 Cntgs.		..... 7.					
Centigram	1 Cntgs.		..... 6.					
Half centigram	5 Millgs		..... 5.					
Double milligram	2 Millgs		..... 4.					
Milligram	1 Millgs		..... 3.5					

Assay of Brass Weihhts

No brass weights are admissible which present any of the following defects:

If their dimensions are not perceptibly those consigned in their respective Table (No. 6).

If the brass is not of identical color in the body and in the knob.

If they present hollows or prominences, or if their surface is not perfectly smooth and turned, so that the scraping of the lathe or of the chisel be not traceable upon it, nor any filling may be discovered on it, intended to disguise the flaws or cavities which they should have.

If in any point of their surface the grating of the file, if such a procedure has been employed to reduce them, is detected.

If they do not bear their respective names and that of their manufacturers, or their trade-marks, well stamped, that is, plainly and regularly.

If the weights whose knobs are removable do not have them well screwed on, or if the copper spikes be wanting which are unavoidably to fasten both pieces together after they have been assayed, and on the flattened end of which spike the die of the State is to be stamped.

If they be short of weight in the least, or if, being too heavy, their excess overweighs the standard surplusage respectively permitted to them.

Pan-shaped Weights

Conical pan-shaped brass weights are also allowed.

These weights serially include one another, in such a way that, each being severally a metrical unit, their joint volume weighs one kilogram or some of its submultiples or divisors, being fashioned in such a way that their volume and shape differ according to their diverse weight, so that on merely viewing them they may be distinguished from each other.

Assay of Pan-shaped Weights

These conical pan-shaped weights shall not be admmitted in the assay if they are found to have any of the following inaccuracies:

If the assemblage of each series does not amount to the weight of one kilogram, or of 500, 200 or 100 grams.

If the repeated weights of the same value which are found in each series are not identical in all their dimensions.

If the weights are not solidy made, and free from any fissures or flaws, and of any filling to disguise such defects.

If they do not bear quite plainly stamped in their upper border the names stating their weight; that of the whole lot on top of the lid of the one which incloses them all; that of this largest one in the under surface of the said lid; and if these names are not those which have been respectively assigned to the knobbed weights made of this metal, in their own Table (No. 6).

If any traces of their having been grated with a file, for the purpose of reducing them, is detected on their surface.

If any of the weights of any one series is short in the least, or if, being heavy in excess, its surplusage is larger than what is respectively allowed for brass weights in the aforesaid last Table (No. 6).